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### Biography

Daniel Montplaisir has completed his PhD from UQTR, Canada. He is the Professor at UQTR and Forest Resources and Wood Products Excellence Chair. His research interest is renewable green composite material from lignocellulosic resources.

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## CELLULOSE FILAMENT AS FIBERGLASS REPLACEMENT IN REINFORCED PLASTIC

Low-density polyethylene (LDPE) was reinforced with natural cellulose filaments (CF) and CF acylated by the sizing agent, alkenyl succinic anhydride (ASA) reagent in an aqueous medium, by simple impregnation. The influence of CF loading on the mechanical properties and water absorption behavior was evaluated. A maximum of 40% (w/w) CF content was found to provide excellent mechanical properties with respect to neat LDPE. A comparison of mechanical properties of LDPE-CF composites and LDPE-glass fiber (GF) composites showed a potential advantage of CF as reinforcement in term of cost and specific properties over conventional GF reinforcement. The chemical modification of the MFC with ASA improved the interfacial adhesion with the matrix and hence the mechanical properties of the composites while decreasing their water uptake capacity. In addition, it was shown that the degree of substitution strongly influenced the performance of the composites.

